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GUNNERA MORAE (GUNNERACEAE), A NEW SPECIES FROM COLOMBIA

Gunnera morae (Gunneraceae), una nueva especie para Colombia

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ABSTRACT

A Colombian species of *Gunnera*, *G. morae* L. Wanntorp & Klackenberg, previously mistakenly identified as *Gunnera manicata* Linden ex André, is presented and described. Molecular phylogenetic studies as well as morphological evidence have shown this plant to be different from the Brazilian true *G. manicata*.

Key words. Flora of Brazil, flora of Colombia, Gunneraceae, *Gunnera manicata*, *Gunnera morae*.

RESUMEN

Se describe una nueva especie de *Gunnera* de Colombia, *G. morae* L. Wanntorp & Klackenberg, que había sido previamente identificada de forma errónea como *G. manicata*. Nuevos estudios filogenéticos basados en caracteres moleculares y morfológicos demuestran que esta planta es diferente de la verdadera *G. manicata* de Brasil.

Palabras clave. Flora de Brasil, flora de Colombia, Gunneraceae, *Gunnera manicata*, *Gunnera morae*.

INTRODUCTION

Gunnera L. is a subtropical genus of 30-40 species of which most occur in South and Central America. Five to six species inhabit New Zealand, while Southeast Asia, Tasmania and Africa have a single endemic species each. Two species grow on Hawaii and one in Mexico (Bader 1961). The genus is currently divided into six monophyletic subgenera based on the geographical distribution of the species as well as on morphology (Schindler 1905, Mattfeld 1933). Among these subgenera, *Panke* Schindler includes two Hawaiian species as well as all South American species except for *G. magellanica* Lam. and *G. lobata* Hooker f. (subgenus *Misandra* Schindler) and *G. herteri* Osten (subgenus *Ostenigunnera* Mattfeld). All species of *Panke* are similar in morphology, being gigantic herbs with stout and erect rhizomes surrounded by palmately lobed leaves that sometimes reach up to several meters in diameter. The inflorescences of *Panke* are compound spikes with many small, dimerous and wind pollinated flowers and the fruits are drupes, which are fleshy and brightly colored in some species while greenish and dry in others.

Mora-Osejo (1984) presented a revision of Gunneraceae in Flora of Colombia in which 23 species were accepted. One of these was wrongly identified as *Gunnera manicata* Linden ex André, the most commonly cultivated species of *Gunnera*. This species was introduced into Europe from Southern Brazil by the botanist and horticulturist Linden (1867), who, however, published the new introduction without a proper description of the plant (Delchevalerie 1867). Some years later, André (1873) provided a valid description for *G. manicata* based on the living material that had been introduced by Linden and since propagated in La Muette botanical garden in Paris. He wrongly stated, however, "Nouvelle Grenade" (present day Colombia) as place of origin for this plant, although Linden (1867) wrote that his *G. manicata* was collected in Campos de Lages in Southern Brazil. Based on this geographical mistake, in several later works, e.g. in Flora of Colombia (Mora-Osejo 1984), Colombia has been wrongly reported as the place of origin for *G. manicata*. Mora-Osejo (1984) noted that the Colombian specimens examined by him did not really correspond in morphology to André's description. This was explained by a theory that Linden's original plant material might have been hybrids with *G. brephogea* Linden & André. Confident that his Colombian taxon was identical to *G. manicata*, Mora-Osejo (1984) designated a specimen of his Colombian taxon as neotype for *G. manicata* Linden ex André. However, due to both the geography and phylogenetic studies (see below), this neotypification is incorrect. Wanntorp et al. (2002b) designated a new type for *G. manicata* based on old cultivated material. See also Gandhi (2002).

Recently extensive phylogenetic studies, mainly based on molecular characters, were conducted on *Gunnera* (Wanntorp et al. 2002a, b). In the context of these studies, the ribosomal (DNA) ITS gene region was sequenced for the Colombian "*G. manicata*", and for two accessions of Brazilian *G. manicata*, one collected in the wild in Brazil and the other of cultivated source (Wanntorp et al. 2002b). According to the retrieved phylogenetic trees, the Brazilian and the Colombian taxa belong to two different clades, supporting the fact that these plants actually constitute two different species (Wanntorp et al. 2002a). In contrast, cultivated material and material from wild Brazilian *G. manicata* had identical gene sequences, and therefore clustered together in the tree. This clearly supports a Brazilian origin for the cultivated *G. manicata* (Wanntorp et al. 2002b). A reexamination of the herbarium specimens that were used for defining the Colombian "*Gunnera manicata*" (Mora-Osejo 1984) showed that this taxon, although similar in habitus and in macro-morphology to *G. manicata*, differs in some morphological characters. All species of *Panke* have conspicuous bracts (lepidophylls) that cover the rhizomes and differ in shape, colour and size within the genus. The bracts of *G. manicata* are up to c. 12 cm long, whitish green, very thin and except for the veins transparent when dry, deeply laciniate with long lobes also from near the base. These primary lobes (laciniae) are often as long as 1/3 to 1/2 of the bract and are in their turn laciniately divided into secondary lobes with fimbriate margins. Only the adaxial side of the bract is hairy. In contrast, the Colombian taxon has reddish purple bracts, hairy on both sides, up to c. 25 cm long that are thicker and not transparent when dry, at lower part without long primary lobes but with laciniae (up to 1/4 as long as the bract, usually much less) at their margins (Fig. 1F). Only larger bracts, 15 cm or more, are sometimes divided into primary and secondary laciniae. However, the margins are not fimbriate or with few scattered fimbrillae only. This gives the lepidophylls of the Colombian "*Gunnera manicata*", a much coarser impression than the more plumy ones of *G. manicata*. In addition, the Colombian taxon has perfect flowers (Fig. 1I), while in the Brazilian *G. manicata* perfect flowers are mixed with unisexual ones.

This morphological evidence supports the molecular results that the Colombian plant belongs to another species and should be described as a new species, *G. morae.* The description here presented is mainly based on that of Mora-Osejo (1984). A description of the petals is added. The petals easily fall off and were not present on the material studied by Mora-Osejo (1984), but can be studied on the new material here chosen as type (Fig. 1I-J). This new material is also the collection that was analyzed in the molecular study (Wanntorp et al. 2002a, 2002b). The petals in *G. morae* are cucullate (Fig. 1I-J), similar to petals in other species of subgenus *Panke*.

Gunnera morae L. Wanntorp & Klackenberg, **sp. nov.**

TYPE**:** COLOMBIA. **Tolima**: Padua, km 37 La Enea Vía Padua, 3370 m alt., 25 Mar 2001, *G. Morales 1570* (holotype, S!; isotype, COL). Figure 1.

Diagnosis. *Species haec* Gunnerae manicatae *similis statura magna et rhizomatis foliis 5-lobatis cordatisque, sed lepidophyllis purpureis usque 25 cm longis cum marginibus laciniatis sed non-fimbriatis et floribus totis perfectis differt.*

Description. Herbs of large size, with rhizomes c. 4 cm wide. Bracts (lepidophylls) 10-25 cm long, c. 0.5-2 cm wide at base, laciniate, larger bracts also lobed, finely hairy on both sides, shining, reddish purple, gradually narrowing into a filiform apex; margins with few fimbrillae or usually not fimbriate. Leaf petioles of young plants 20-40 cm long, c. 1 cm thick at base, sulcate, covered by scattered erect spines; blades orbicular, 5-lobate, cordate at base; upper side areolate, scabrous, spotted dark red, lower side with dark red hairy veins; lobes acute or truncate at apex, sometimes acuminate; largest sinuses rounded, cleft c. 1/3 of the leaf radius, second largest sinuses cleft c. 1/4 of the leaf radius; margins dentate with distinct teeth of different sizes on young leaves, older leaves with smaller more rounded teeth. Inflorescences sessile, 50-60 cm long after anthesis, pilose to sparsely pilose, dark red; rhachis 0.5-1.5 cm wide, deeply sulcate; lateral branches 8-18 cm long, 1-1.5 cm wide, sulcate; bracts when present linear to thread-like, rarely slightly broadened, 0.4-2 cm long, 0.1-1.5 mm wide, with entire margins or a few teeth. Flowers perfect; sepals at anthesis triangular to oblong with irregular membranaceous often obtuse apex, 1.3-1.8 mm long, dark red, after anthesis persistent, triangular, usually acute, 0.6-0.8 mm long; petals hooded, 2.0-2.3 x 1.3-1.6 mm, soon falling off; stamens 2; anthers elliptical to broadly elliptical, 1.3-1.8 mm long, 1.2-1.3 mm wide, not or shortly apiculate; filaments very short. Ovaries (mature) cylindrical, 0.7-1.0 mm wide at base. Fruits subglobose, slightly narrowed at top, 1.5-1.8 x 1.5-1.8 mm long, on short pedicels.

Etymology. We have, with his agreement, named this plant after the late Colombian botanist Mora-Osejo, who discovered this new species.

Distribution and ecology. *Gunnera morae* is known from Colombia along the Cordillera Central, where it grows at 2660-3525 m altitude. It has been collected in the provinces of Antioquia, Quindío, Risaralda, Tolima and Nariño. Specimens in flower or in young fruit seen from March, July and October.

Paratypes. COLOMBIA. **Nariño**: Túquerres y Piedrancha, vereda de Chambú, *Mora* 4683 (COL); ibidem, *Mora* 4684 (COL); **Quindío**: La Línea, carretera Cajamarco, *García-Barriga* 21251 (COL); **Risaralda**: Cordillera Central, Municipio de Santa Rosa, entre la hacienda La Sierra y Termales de Santa Rosa, quebrada la Sierra, *Jaramillo et al.* 5988 (COL); **Tolima**: Carretera El Fresno a Manizales, arriba de Padua, *Uribe* 3318 (COL)**;** **Antioquia**: Municipio de Sonsón, Páramo de Sonsón, 1977, *Lozano et al.* 2974 (COL).

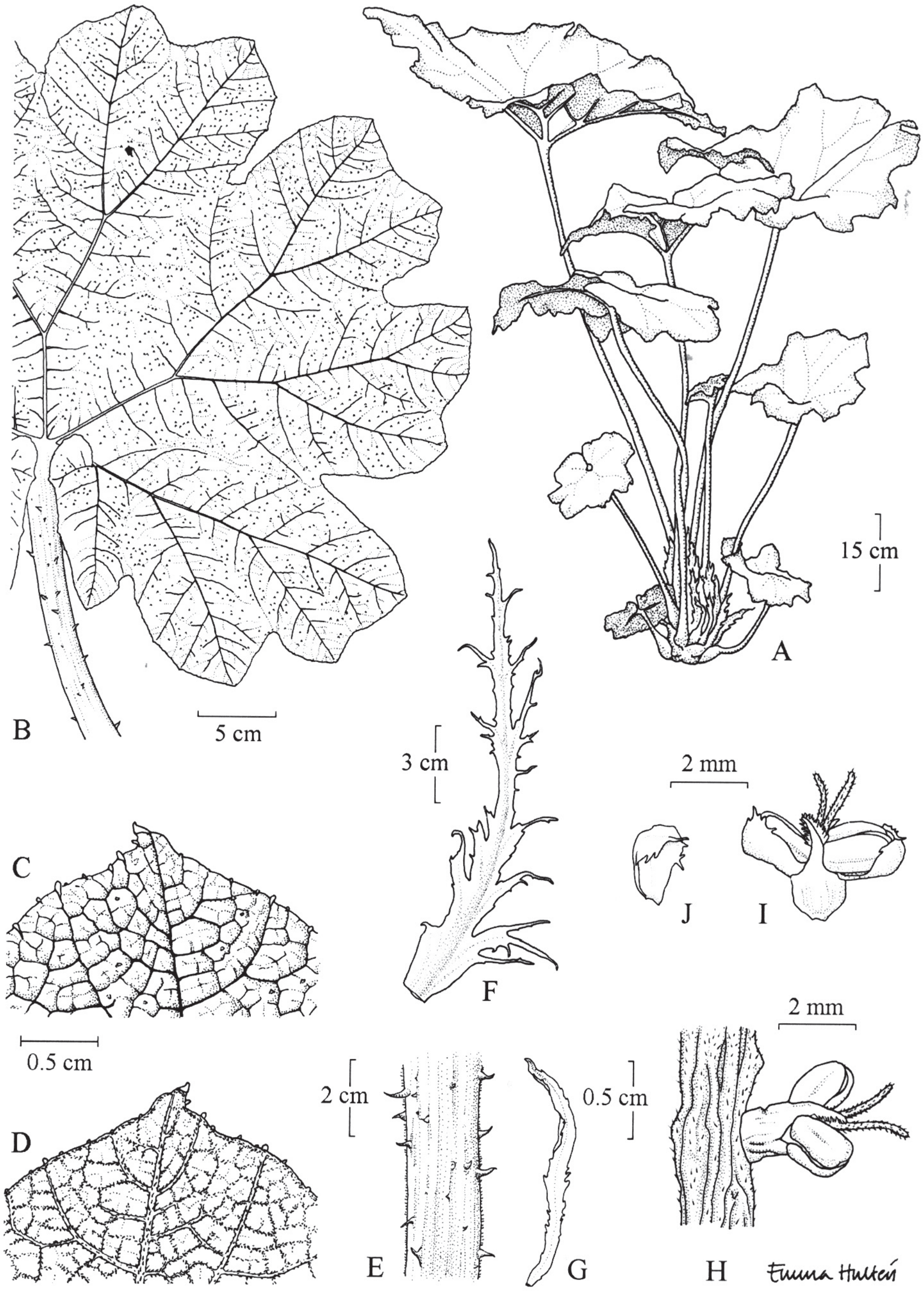
A
15 cm
B
5 cm
3 cm
2 mm
C
J
I
F
0.5 cm
2 mm
2 cm
0.5 cm
D
E
G
H
Emma Hultén

Figure 1. ***Gunnera morae***. A, habit; B, leaf; C-D, part of leaf (C, abaxial side), (D, adaxial side); E, leaf petiole; F, bract (lepidophyll); G, bract of the inflorescence; H, part of inflorescence with ca 4 flowers removed; I, flower; J; petal. (A-J *Morales 1570*, A-E from living plants in greenhouse). Drawn by Emma Hultén, Stockholm.

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